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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/743,970	12/23/2003	Gino Tanghe	920522-95345	9404

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EXAMINER	
HOLTON, STEVEN E	
ART UNIT	**PAPER NUMBER**
2629	

NOTIFICATION DATE	DELIVERY MODE
12/04/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patent-ch@btlaw.com

Office Action Summary	Application No.	Applicant(s)	
	10/743,970	TANGHE ET AL.	
	Examiner	Art Unit	
	Steven E. Holton	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 September 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18,20 and 23-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18,20 and 23-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is made in response to applicant's amendment filed on 9/11/2008. Claims 1-18, 20, and 23-26 are currently pending in the application. An action follows below:

Response to Arguments

2. Applicant's arguments, see pages 7-9, filed 9/11/2008, with respect to the rejection(s) of claim(s) 1-10, 17-20, and 23-26 under 35 USC 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of prior art previously made of record and now applied in a new manner.

The Examiner agrees with the arguments that neither the Greene nor Someya references provide sufficient teaching for an initial calibration and periodic calibration of the display device. The previously provided reference Cok et al. discloses initial and periodic calibration of a display device based on changes of the display device during operation. This calibration method is combined with the calibration methods of Greene and Someya to make up the new rejection.

The Examiner finds the arguments regarding optimization to be non-persuasive. It would be a matter of design choice to select values of operating parameters to optimize a device for desired operation. Depending on the desired operation the parameters of a device would be selected to meet a optimized performance. Such

selection of parameter values is well within the ability of one of ordinary skill in the art and is not inventive.

On pages 8 and 9 of the remarks, the Applicant has argued that the claimed invention is distinct from Greene and Someya because the claimed invention is drawn to optimization of parameters of the display device. The Examiner finds this argument non-persuasive based on the scope of the dependent claims. Later claims disclose adjustment of the display device parameters based on measurements of aging, environmental parameters and other issues (claims 11 and 13 for example). Further, the disclosure clearly states that some of the adjustments based on aging and other factors will involve the changing of the gamma curves, contrast, and brightness (paragraph 100). Such adjustments do not set a parameter of the display device but would directly adjust the image data being displayed to adjust the brightness of the image displayed. Greene and Someya disclose adjusting the image data to control brightness and contrast of the final image. Therefore, the references do disclose setting an emissive display to a target value for operation of the display device. These target values are directly used to adjust the gamma, brightness, or contrast of the final image and are the same as the target values described by the Applicant which are used to adjust the brightness, gamma curves, and contrast of the final image output.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-10, 15-18, 20, and 23-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Greene et al. (USPN: 6020868), hereinafter Greene, in view of Someya (USPN: 5396257), and further in view of Cok et al. (USPN: 7161566), hereinafter Cok.

Regarding claims 1 and 24, which are drawn to a method of operation and associated display device, Greene discloses a tiled display with flat panel displays making up the tiles (Fig. 2, col. 4, lines 48-52). Green discloses the flat panel displays are known using many different types of technologies including liquid crystal displays, plasma displays, and electroluminescent displays (col. 1, lines 17-24). Greene further discusses a method of matching the visual output of the flat panel display device using correction data stored in memory devices for application to signals to be displayed.

However, Greene does not expressly disclose a method of matching color of a tiled display including “for each of the first subdivisions, setting the emissive devices so that each of said first subdivisions is optimized with respect to a first subdivision target value for that first subdivision, and after setting the emissive devices, for the emissive display, setting the first subdivision so that said emissive display is optimized with

respect to an emissive display target value for said emissive display." Also, Greene does not expressly disclose initial and periodic calibrations of the display system.

Someya discloses a method of matching the output of a tiled display device in which each display device is set to optimize the display of the individual display device and then matching the corrected individual display devices to completely match the tiled display device (col. 4, lines 37-59).

At the time of invention it would have been obvious to one of ordinary skill in the art to combine the teachings of Greene and Someya to produce a method of controlling a tiled display device for correcting the output of the display device. The tiled display device of Greene which uses a flat panel display could be done using any of the well-known types of flat panel display such as an electroluminescent display. Such an electroluminescent display devices is comprised of individual pixels and sub-pixels for emitting light to make up a displayed image. The method of tile display matching described by Someya could be applied to the electroluminescent tiled display of Greene so that first each electroluminescent display would be corrected and then multiple electroluminescent displays would be matched to each other. The motivation would be to produce a tiled display device with reduced luminance shading and color shading between the plurality of display units (Someya; col. 2, lines 39-42).

However, the combination of Greene and Someya do not expressly disclose initial and periodic calibration of the display system.

Cok discloses a method of adjusting an emissive display system using both an initial calibration of the display device (Fig. 3, steps 30-35) and performing periodic

calibrations (Fig. 3, steps 44-56; col. 6, lines 16-21) after the initial calibration of the display device.

At time of invention it would have been obvious to one of ordinary skill in the art to combine the teachings of Greene, Someya, and Cok. The calibration and data matching of the Greene and Someya systems could be combined with the periodic calibration method of Cok. The rationale would be that aging of emissive elements or other operation parameters known to effect the display device could be taken into consideration as part of the calibration of the display device. Thus, it would have been obvious to combine the teachings of Greene, Someya, and Cok to produce a method and device as described in claims 1 and 24.

Regarding claims 2 and 25, Someya does not expressly disclose dividing the tiled display into larger groupings of tiles so that each larger set of displays are matched to each other. Greene discusses the idea of sub-dividing a display into smaller groups, measuring each group, and the matching the different groups with one another to produce a final correction measurement (col. 7, lines 17-39).

At the time of invention it would have been obvious to one of ordinary skill in the art that the correction of a smaller area and then matching the smaller area with other small areas to produce a corrected larger area could be performed with multiple layers of subdivisions. The rationale would be to scale a method of correction of multiple display elements for larger and larger groups of display elements. It would be logically obvious that a sub-division of a display could be corrected and then matched to other elements within the display to form a larger sub-area. Then larger sub-areas could be

corrected and matched to other sub-areas and so on. Such a method could be performed by using the suggested steps of Greene for subdividing an individual display into smaller regions for individual correction to correct the entire display. Then, the method of Someya of taking a corrected display and matching it with other corrected displays would produce a corrected tile of multiple display devices. This method could be later extended to larger groups of display devices or to smaller sub-divided areas of pixels. Thus, it would have been obvious to one of ordinary skill in the art that the methods of matching sub-areas described by Someya and Greene could be extended to include multiple iterations of matching areas, then a sets of areas, and then matching sets of sets of areas to produce the method and device described in the claims.

Regarding claim 3, neither Someya nor Greene expressly discloses providing further subdivisions made up of second subdivisions made up of first subdivisions. However, similar to claim 2, it would have been obvious to one of ordinary skill in the art that multiple subdivisions could be mated together, and then matched sets of subdivisions could be matched with other sets. And the matching of sets could be extended to larger and larger groupings to generate a large tiled display with matched display outputs. Thus, it would have been obvious to one of ordinary skill in the art that the method of first matching a smaller area of elements and then matching multiple smaller areas as described by Someya could be extended so that groups of matched smaller areas could be matched with other groups to produce a larger matched group of groups.

Regarding claim 4, Greene discloses the first subdivision of a tiled display is an emissive display (Fig. 2; col. 4, lines 48-52).

Regarding claims 5 and 6, as discussed with regarding claims 2 and 3, it would have been obvious that multiple corrected displays could be grouped together and corrected with each other. The group of individual displays would be a display tile. Further, correcting multiple tiles of individual displays would result in creating a corrected group of groups, or a supertile of displays.

Regarding claims 7 and 8, Someya discloses causing the display devices to be changed to a uniform level (col. 5, lines 18-37). Uniform would embody the 10%, 5%, and .8% levels of matching the displays discussed in the claims.

Regarding claims 9 and 10, Someya discloses matching display devices to a uniform level (col. 5, lines 18-37). It would be obvious larger and larger groups of display devices together as tiles and supertiles would also be matched to the uniform level. Thus, it would have been obvious to continue to match the output of larger and larger groups of display devices to uniform levels including 10%, 5%, and 0.8%.

Regarding claim 15, Cok discloses a method of adjusting and correcting the output of an electroluminescent display device based on the measurement of the age of the display device (abstract; col. 7, lines 18-26).

Regarding claim 16, Cok discloses changing operating parameters of a display device based on the age of the display device (col. 7, lines 18-26).

Regarding claim 17, Someya discloses adjusting a control parameter of the display device (col. 4, lines 37-59). Someya discloses adjusting the image data used to

control the display device. Thus, the image data and the parameters of the image data such as brightness, gamma, and contrast are used to control the display device to produce an image for viewing. Thus, Someya discloses adjusting the control parameters of the image data to produce a desired output of the display device.

Regarding claim 18, Someya discloses using the computer device to perform all corrections for each tile and across all of the tiles. The use of an algorithm that can be used for both types of calculations would be obvious to one skilled in the art as useful programming and would be a matter of design choice based on the speed of algorithms available vs. the amount of computer processing power and memory available for the entire system.

Regarding claim 20, Someya discloses matching the brightness of the display (col. 4, lines 44-59) and the color of the display (col. 6, lines 1-8).

Regarding claim 26, the Examiner notes that Someya performs the steps of the action on a computer. At the time of invention it would have been obvious to one of ordinary skill in the art that the computer program to run the method could be stored on a standard computer readable medium such as a hard-drive, CD-ROM, or other well known type of storage device.

Regarding claim 23, the Examiner takes Official Notice that it is well known in the art of computing that computer programs can be transmitted across telecommunications networks to be performed at different computer locations.

4. Claims 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Greene in view of Someya and in view of Cok as applied to claim 3 above, and further in view of Miller et al. (USPN: 7184067), hereinafter Miller.

Regarding claim 11, the combination of Greene, Someya, and Cok disclose all of the limitations except, " wherein determining any or more of the first subdivision target value, second subdivision target value, the further subdivision target value and/or emissive display target value, an environmental parameter is take into account."

Miller discloses an electroluminescent display device (Fig. 3, element 28) where the operating parameters of the display device are modified by measuring an environmental parameter of the conditions outside of the display device (col. 8, lines 26-43).

At the time of invention it would have been obvious to one or ordinary skill in the art to combine the teachings of Greene, Someya, Cok, and Miller to produce a tiled display device with correction for environmental parameters. It would have been obvious to combine the tiled electroluminescent display of Greene, Someya, and Cok with the ambient light measurement system described by Miller. The motivation would be to adjust the brightness of the display device based on the ambient light to improve the power consumption and lifespan of an organic electroluminescent display device (Miller, col. 10, lines 9-12). Thus, it would have been obvious to combine the teachings of Greene, Someya, Cok, and Miller to produce a method of operating a tiled display with environmental measurement as described in claim 11.

Regarding claim 12, Miller discloses measuring the temperature of a display device for modification of the output of the display device (col. 10, lines 20-22).

Regarding claim 13, Miller discloses that the temperature sensor can be inside the display device and outside the display device (col. 10, lines 20-22). A temperature sensor placed near a display device can only measure the ambient temperature surrounding the display device which is affected by the display device. Thus, by measuring the temperature outside of the display device the temperature of the display device can be estimated based on the measured ambient temperature.

Regarding claim 14, Miller discloses measuring the ambient illumination (col. 8, lines 26-43).

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven E. Holton whose telephone number is (571)272-7903. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (571) 272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Bipin Shalwala/
Supervisory Patent Examiner, Art Unit 2629

Steven E. Holton
Division 2629
December 1, 2008